

**A MIMO-OFDM PREAMBLE FOR
CHANNEL ESTIMATION**

ABSTRACT OF THE DISCLOSURE

[0037] A preamble for a MIMO-OFDM system includes multiple training symbols. Each training symbol has a pattern in which data symbols and null symbols are transmitted on all tones and on all transmit antennas. The pattern for each training symbol corresponds to a cyclic shift of the patterns of the other training symbols.